

STATE OF INDIANA DEPARTMENT OF ADMINISTRATION
DEPARTMENT OF NATURAL RESOURCES

Division of Engineering
402 W. Washington Street, Room W299
Indianapolis, IN 46204

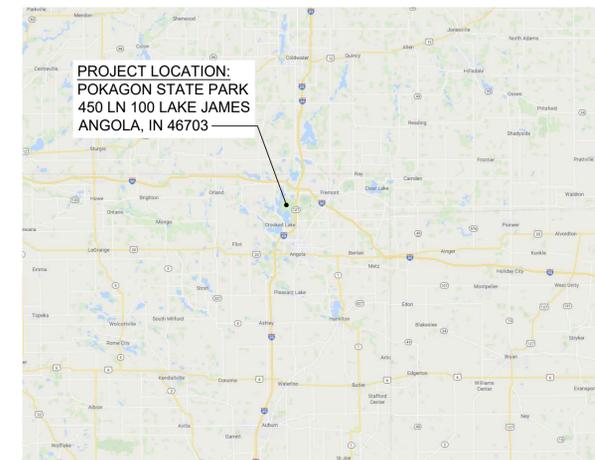
Pokagon State Park
Toboggan Run Piping Upgrades
Public Works Project No. ENG2003780646

Construction Documents
November 22, 2021



Drawing List

G001	TITLE SHEET
G201	SITE PLAN
MP301	MECHANICAL AND PLUMBING UPPER TRACK PLAN AND PROFILE
MP302	MECHANICAL AND PLUMBING MIDDLE TRACK PLAN AND PROFILE
MP303	MECHANICAL AND PLUMBING LOWER TRACK PLAN AND PROFILE
MP501	MECHANICAL AND PLUMBING SECTIONS, DETAILS, AND SCHEDULES
MP502	MECHANICAL AND PLUMBING SECTIONS, DETAILS, AND SCHEDULES
E301	ELECTRICAL UPPER TRACK PLAN AND PROFILE
E302	ELECTRICAL MIDDLE TRACK PLAN AND PROFILE
E303	ELECTRICAL LOWER TRACK PLAN AND PROFILE
E501	ELECTRICAL SCHEDULES AND DETAILS



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PROJECT
Pokagon State Park Toboggan Run Piping Upgrades
Public Works Project No. ENG2003780646

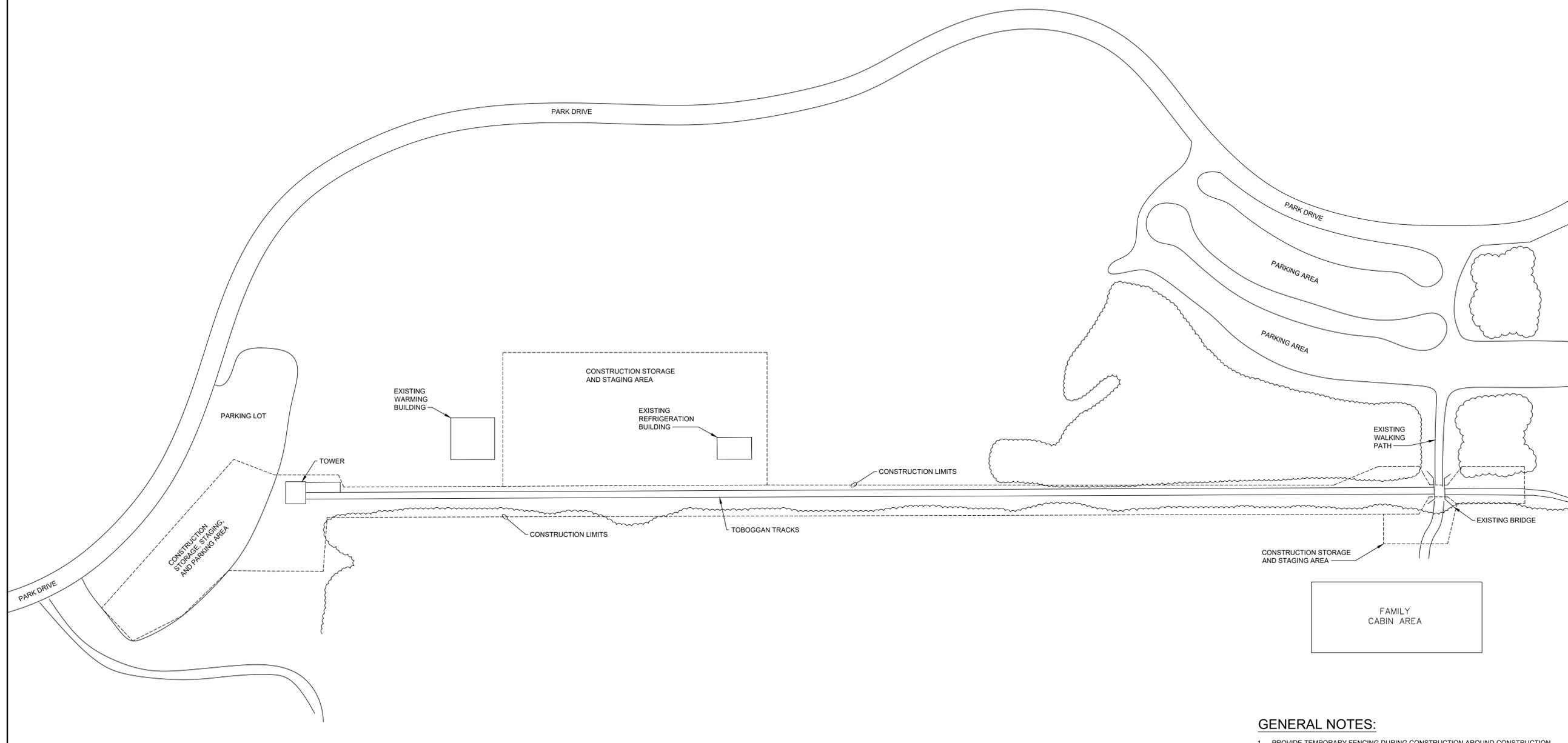
Construction Documents
November 22, 2021

REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED BY MDJ	
CHECKED BY TMA	
APPROVED BY MDJ	
PROJECT NO. 19-110	

SHEET TITLE
SITE PLAN

SHEET NUMBER
G201



SITE PLAN
SCALE: 1"=50'

GENERAL NOTES:

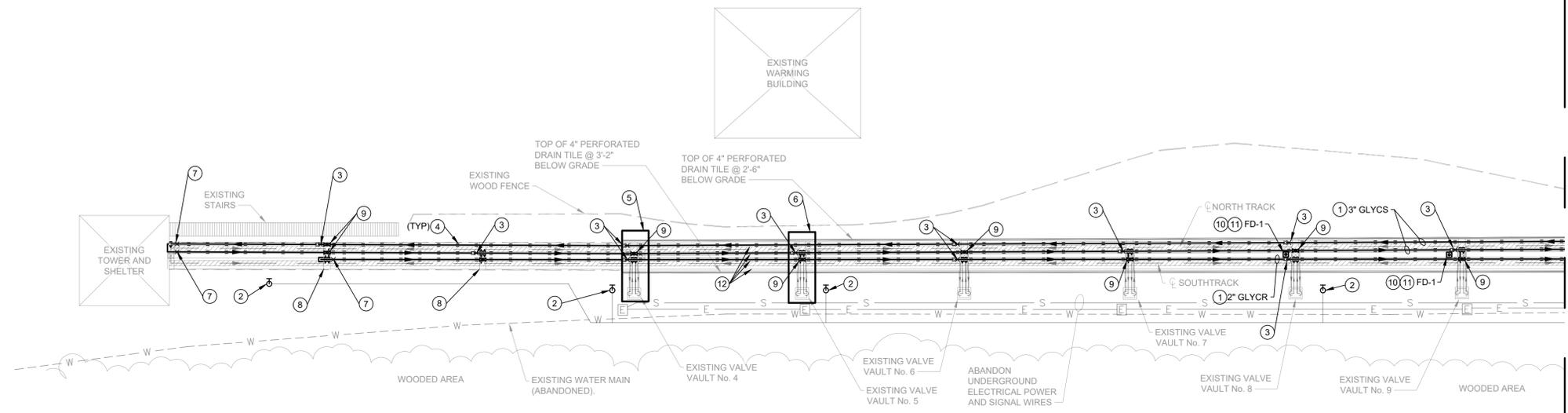
1. PROVIDE TEMPORARY FENCING DURING CONSTRUCTION AROUND CONSTRUCTION LIMITS. FACILITY MANAGER SHALL APPROVE CONSTRUCTION LIMITS PRIOR TO ERECTING TEMPORARY FENCING.
2. MINIMIZE BRUSH CLEARING.
3. TREES SHALL NOT BE REMOVED UNLESS SHOWN ON THE CONSTRUCTION DOCUMENTS OR WHERE OTHERWISE APPROVED.
4. CONTRACTOR SHALL PROVIDE PERMANENT SEEDING IN ALL AREAS DISTURBED BY CONSTRUCTION.
5. CONTRACTOR SHALL REPAIR OR REPLACE IN-KIND PAVED DRIVES, WALKWAYS, AND OTHER SURFACES DAMAGED BY CONSTRUCTION ACTIVITIES.

GENERAL NOTES:

- ASSEMBLE COMPLETE A SINGLE 100 FOOT SECTION OF TRACK FOR DEMONSTRATION AND APPROVAL PRIOR TO WORK ON ENTIRE RUN. INCLUDED IN THE LENGTH SHALL BE A SINGLE 3" DIAMETER PIPE RUN, PIPE GUIDES, EXPANSION JOINTS, FIELD INSTALLED REMOVABLE INSULATION BLANKET, STAINLESS STEEL TRACK SHROUD WITH DRAIN CUTS AS DESCRIBED ON "MP501/C - EXPANSION JOINT AND PIPE ANCHOR DETAIL". ANCHORS ON EACH END OF THE PIPE LENGTH, AND CONNECTION TO EXISTING IN-SLAB TUBING AS DESCRIBED IN THESE DRAWINGS. THE TRACK SECTION SHALL BE ON GRADE (NOT ON THE RAISED TRACK AT THE TOP OF RUN). IF APPROVED, THE DEMONSTRATION SECTION MAY BE USED AS PART OF THE COMPLETED CONSTRUCTION. DO NOT PROCEED WITH THE REMAINDER OF PIPING INSTALLATION UNTIL WRITTEN APPROVAL IS RECEIVED FROM OWNER OR ENGINEER.
- CALL 411 FOR A UTILITY LOCATE PRIOR TO DIGGING OR ANY UNDERGROUND CONSTRUCTION ACTIVITY. PROTECT ALL EXISTING BURIED UTILITIES FROM DAMAGE.

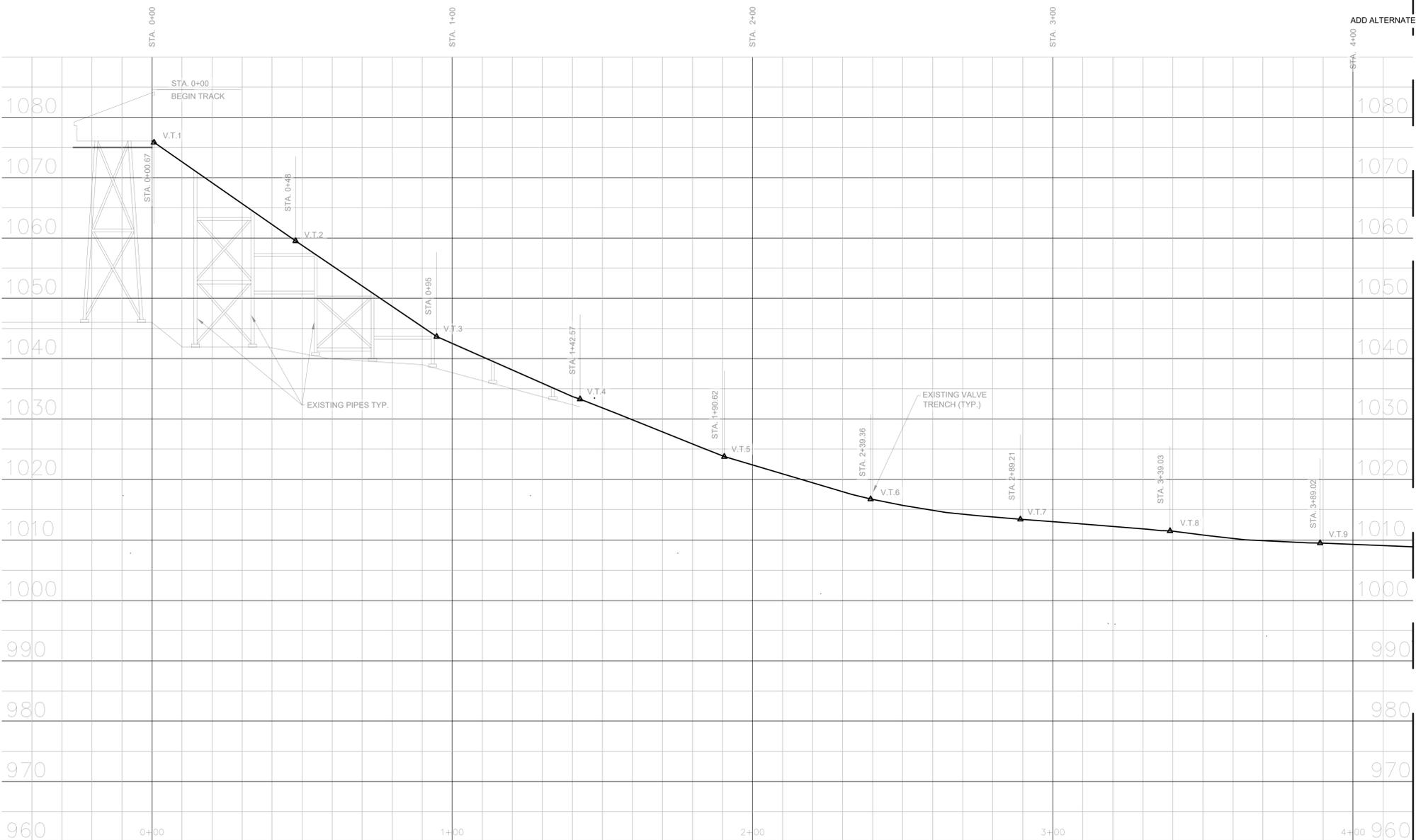
PLAN NOTES:

- REMOVE STAINLESS STEEL SHEET METAL SHROUDS AND PIPE MAINS. INSTALL NEW FACTORY INSULATED PVC PIPING WITH INTEGRAL 1" THICK POLYURETHANE INSULATION AND HDPE JACKET. RE-INSTALL STAINLESS STEEL METAL SHROUDS AFTER PIPING IS INSTALLED AND PRESSURE TESTED.
- REMOVE EXISTING YARD POST HYDRANT. REPLACE WITH NEW. SEE "MP501/B - YARD POST HYDRANT DETAIL."
- PIPE EXPANSION JOINT AND ANCHOR. SEE "MP501/C - EXPANSION AND JOINT PIPE ANCHOR DETAIL" AND "PLAN VIEW ANCHOR W/ EXPANSION JOINT" ON NOTED DETAIL. APPLY LABEL TO STAINLESS STEEL TRACK SHROUD INDICATING LOCATION OF EXPANSION JOINT. SEE DETAIL "MP502/F - EXPANSION JOINT LABEL DETAIL" FOR LABELING DIRECTION.
- TYPICAL PIPE GUIDE. INSTALL PIPE GUILD EVERY 6FT MAX. SEE "MP502/D - PIPE GUIDE DETAIL."
- PROVIDE PVC TEES AND 1-1/4" PVC BRANCHES. CONNECT TO EXISTING GALVANIZED STEEL PIPE BRANCHES IN PIPE PIT. TYPICAL FOR ALL EVEN NUMBERED VALVE VAULTS. SEE "MP502/A - PIPE BRANCH CONNECTION DETAIL FOR EVEN NUMBERED VALVE VAULT TIE-IN."
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- PIPE ANCHOR. SEE "MP501/C - EXPANSION JOINT AND PIPE ANCHOR DETAIL" AND "PLAN VIEW ANCHOR ONLY" ON NOTED DETAIL.
- REMOVE INSULATED VALVE BOX UNDER ELEVATED TRACK FOR CONNECTION TO EXISTING PIPE BRANCHES. RE-INSTALL INSULATED VALVE BOX AFTER PIPING IS INSTALLED AND PRESSURE TESTED.
- PVC COMPACT BALL VALVE WITH SOCKET ENDS AND EXTENDED HANDLE TO ALLOW FOR INSULATION THICKNESS. INSTALL VALVE ABOVE VALVE PIT WITH HANDLE BELOW VALVE TO ALLOW SPACE FOR INSTALLATION OF STAINLESS STEEL TRACK SHROUD. FIELD INSTALL INSULATION OVER VALVE.
- REPLACEMENT OF DRAIN FIXTURE SHALL BE INCLUDED ONLY IF ADD ALTERNATE #1 IS ACCEPTED. CLEAN AND FLUSH EXISTING STORM WATER DRAIN. REMOVE SAND AND DEBRIS AND CONFIRM DRAIN PIPING IS FUNCTIONAL PRIOR TO REPLACING DRAIN FIXTURE.
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- CUT DRAIN OPENINGS IN STAINLESS STEEL SHROUD EVERY 20 FT MINIMUM. AT HEAT TRACING AND LOW POINTS IN TRACK INCREASE FREQUENCY OF DRAIN OPENINGS TO EVERY 10 FT MINIMUM. SEE "MP502/G - TRACK SHROUD DRAIN DETAIL." DO NOT CUT DRAIN OPENINGS ON ELEVATED TRACK AT TOP OF RUN.



MECHANICAL AND PLUMBING UPPER TRACK PLAN AND PROFILE

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'



ADD ALTERNATE #1
ADD ALTERNATE #1

MATCH LINE SEE MP302 FOR CONTINUATION

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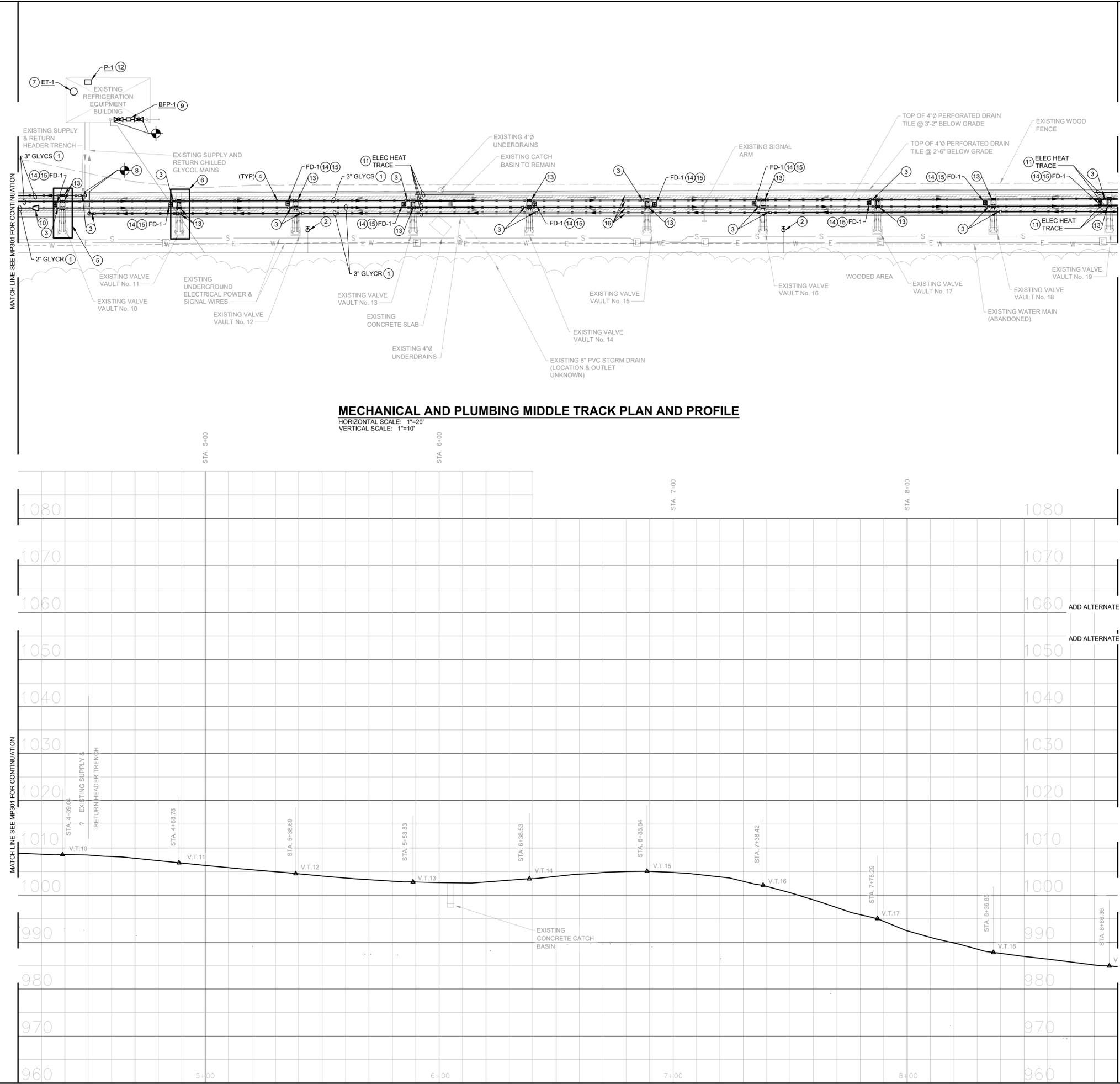
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PROJECT NO. 19-110	
SHEET TITLE	

MECHANICAL AND PLUMBING UPPER TRACK PLAN AND PROFILE

SHEET NUMBER
MP301

ORIGINAL SHEET SIZE IS 24" X 36" (ARCH D)
 Location: G:\PROJECTS\19-110 IDOA - DNR POKAGON STATE PARK TOBOGGAN RUN MECHANICAL UPGRADES\CADD\19-110_MP301 - 3 | Plot Date: 11/23/2021 5:06 PM | By: MJAMIESON | Save Date: 11/23/2021 5:06 PM |



GENERAL NOTES:

- ASSEMBLE COMPLETE A SINGLE 100 FOOT SECTION OF TRACK FOR DEMONSTRATION AND APPROVAL PRIOR TO WORK ON ENTIRE RUN. INCLUDED IN THE LENGTH SHALL BE A SINGLE 3" DIAMETER PIPE RUN, PIPE GUIDES, EXPANSION JOINTS, FIELD INSTALLED REMOVABLE INSULATION BLANKET, STAINLESS STEEL TRACK SHROUD WITH DRAIN CUTS AS DESCRIBED ON "MP501/C - EXPANSION JOINT AND PIPE ANCHOR DETAIL", ANCHORS ON EACH END OF THE PIPE LENGTH, AND CONNECTION TO EXISTING IN-SLAB TUBING AS DESCRIBED IN THESE DRAWINGS. THE TRACK SECTION SHALL BE ON GRADE (NOT ON THE RAISED TRACK AT THE TOP OF RUN). IF APPROVED, THE DEMONSTRATION SECTION MAY BE USED AS PART OF THE COMPLETED CONSTRUCTION. DO NOT PROCEED WITH THE REMAINDER OF PIPING INSTALLATION UNTIL WRITTEN APPROVAL IS RECEIVED FROM OWNER OR ENGINEER.
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- PIPE EXPANSION JOINT AND ANCHOR. SEE "MP501/C - EXPANSION JOINT AND PIPE ANCHOR DETAIL" AND "PLAN VIEW ANCHOR W/ EXPANSION JOINT" ON NOTED DETAIL. APPLY LABEL TO STAINLESS STEEL TRACK SHROUD INDICATING LOCATION OF EXPANSION JOINT. SEE DETAIL "MP502/F - EXPANSION JOINT LABEL DETAIL" FOR LABELING DIRECTION.
- TYPICAL PIPE GUIDE. INSTALL PIPE GUILD EVERY 6FT MAX. SEE "MP502/D - PIPE GUIDE DETAIL."
- PROVIDE PVC TEES AND 1-1/4" PVC BRANCHES. CONNECT TO EXISTING GALVANIZED STEEL PIPE BRANCHES IN PIPE PIT. TYPICAL FOR ALL EVEN NUMBERED VALVE VAULTS. SEE "MP502/A - PIPE BRANCH CONNECTION DETAIL FOR EVEN NUMBERED VALVE VAULT TIE-IN."
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- REPLACE EXISTING EXPANSION TANK. DISCONNECT EXISTING PIPE CONNECTION. INSTALL EXPANSION TANK ON EXISTING HOUSEKEEPING PAD. RECONNECT PIPING. FIELD VERIFY EXISTING TANK PIPE CONNECTION SIZE, AND SPACE REQUIRED FOR INSTALLATION PRIOR TO ORDERING NEW. PROVIDE ALL PIPE AND PIPE FITTINGS REQUIRED FOR A FULLY OPERATIONAL EXPANSION TANK REPLACEMENT. SEE EXPANSION TANK SCHEDULE ON MP502.
- CONNECT TO EXISTING BURIED GLYCOL MAINS FROM THE REFRIGERATION EQUIPMENT BUILDING.
- REPLACE EXISTING BACKFLOW PREVENTER. SEE "MP502/B - BACKFLOW PREVENTER DETAIL."
- REDUCER SHALL BE FLAT ON THE BOTTOM.
- 25FT LENGTH OF ELECTRIC HEAT TRACE IN ALL FOUR STAINLESS STEEL SHEET METAL SHROUDS. CENTER EACH STRAIGHT RUN OF ELECTRIC HEAT TRACE ON CATCH BASIN BETWEEN THE NORTH AND SOUTH TRACK. SEE "MP502/C - HEAT TRACE DETAIL". APPLY LABEL WITH THE TEXT "HEAT TRACE" TO THE STAINLESS STEEL TRACK SHROUDS ON THE FACE CONCEALED FROM VIEW. USE THE SAME LABEL SPECIFICATION AND LOCATE LABELS SIMILARLY TO THOSE DESCRIBED ON "MP502/F - EXPANSION JOINT LABEL DETAIL". REVIEW ELECTRICAL SHEETS FOR ADDITIONAL HEAT TRACE REQUIREMENTS. COORDINATE WITH ELECTRICAL CONTRACTOR. UNLESS OTHERWISE DIRECTED BY CONSTRUCTION MANAGEMENT TEAM, ELECTRICAL CONTRACTOR SHALL PROVIDE HEAT TRACE.
- REPLACE EXISTING GLYCOL CIRCULATION PUMP IN-KIND. DISCONNECT EXISTING PIPE AND ELECTRICAL CONNECTIONS. INSTALL PUMP AND ANCHOR TO EXISTING HOUSEKEEPING PAD. RECONNECT PIPE AND ELECTRICAL CONNECTIONS. FIELD VERIFY EXISTING PUMP DIMENSIONS, PIPE CONNECTION SIZES, AND MOTOR SIZE AND VOLTAGE PRIOR TO ORDERING NEW. PROVIDE ALL PIPE AND PIPE FITTINGS AND ELECTRICAL DEVICES REQUIRED FOR A FULLY OPERATIONAL PUMP REPLACEMENT. EXISTING PUMP SHALL BE TURNED OVER TO OWNER ONCE REMOVED. PROTECT EXISTING PUMP FROM DAMAGE DURING REMOVAL. NOTE ANY EXISTING DAMAGE IN WRITING PRIOR TO DEMOLITION. SEE PUMP SCHEDULE ON MP501.
- PVC COMPACT BALL VALVE WITH SOCKET ENDS AND EXTENDED HANDLE TO ALLOW FOR INSULATION THICKNESS. INSTALL VALVE ABOVE VALVE PIT WITH HANDLE BELOW VALVE TO ALLOW SPACE FOR INSTALLATION OF STAINLESS STEEL TRACK SHROUD. FIELD INSTALL INSULATION OVER VALVE.
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PROJECT
 Pokagon State Park
 Toboggan Run Piping
 Upgrades
 Public Works Project No.
 ENG2003780646

Construction Documents
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REVISIONS

NO.	DATE	DESCRIPTION

DESIGNED BY MDJ	CERTIFICATION
CHECKED BY TMA	
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PROJECT NO. 19-110	

MECHANICAL AND PLUMBING MIDDLE TRACK PLAN AND PROFILE

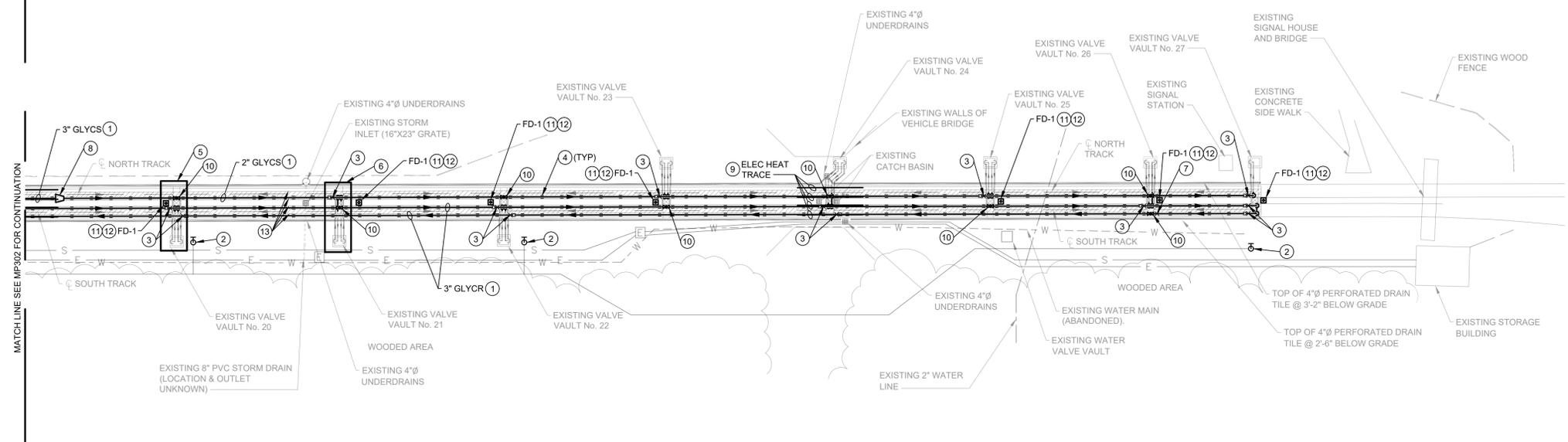
SHEET NUMBER
 MP302

GENERAL NOTES:

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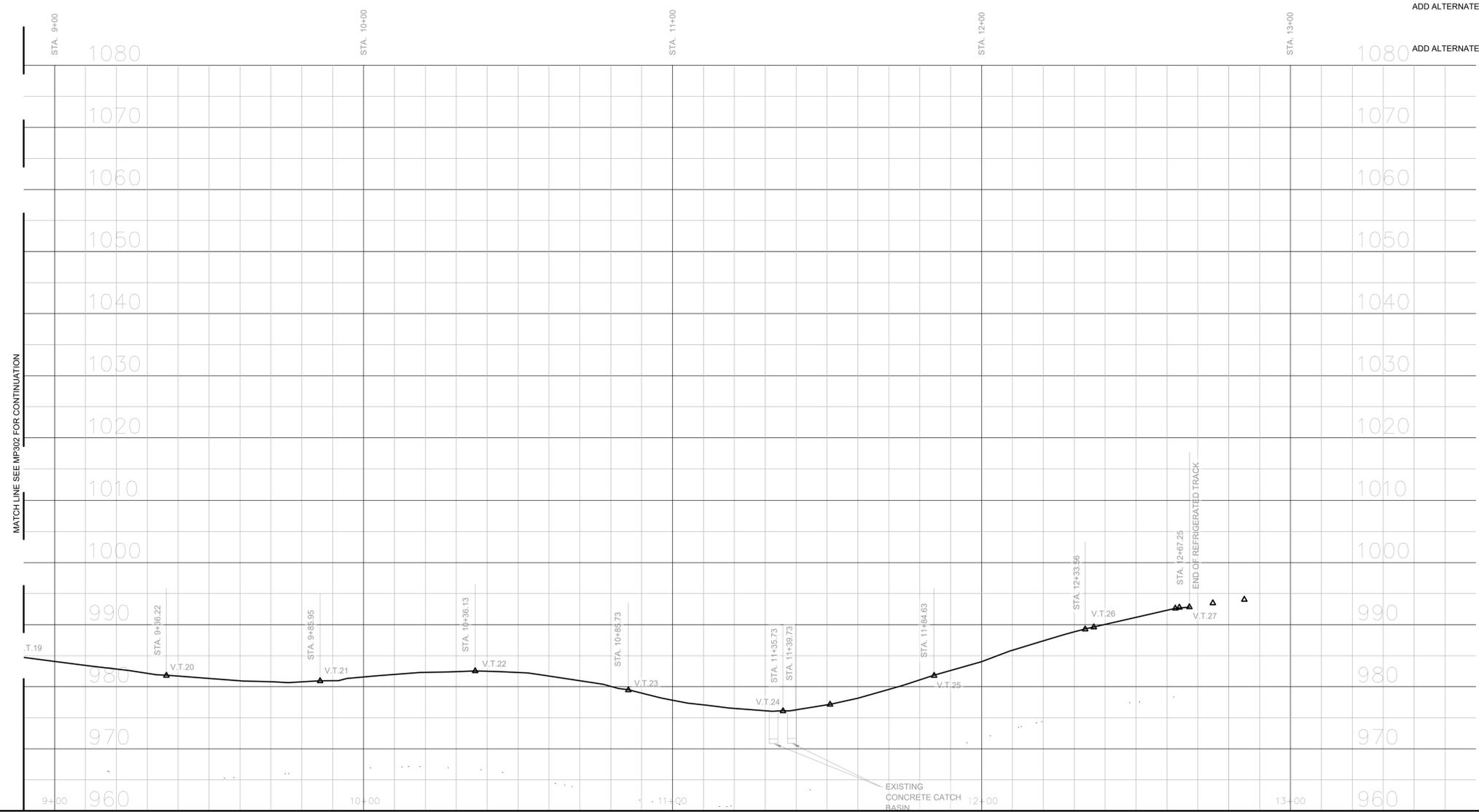
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MECHANICAL AND PLUMBING LOWER TRACK PLAN AND PROFILE

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'



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MECHANICAL AND PLUMBING LOWER TRACK PLAN AND PROFILE

SHEET NUMBER
MP303

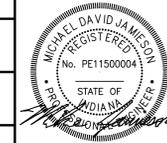
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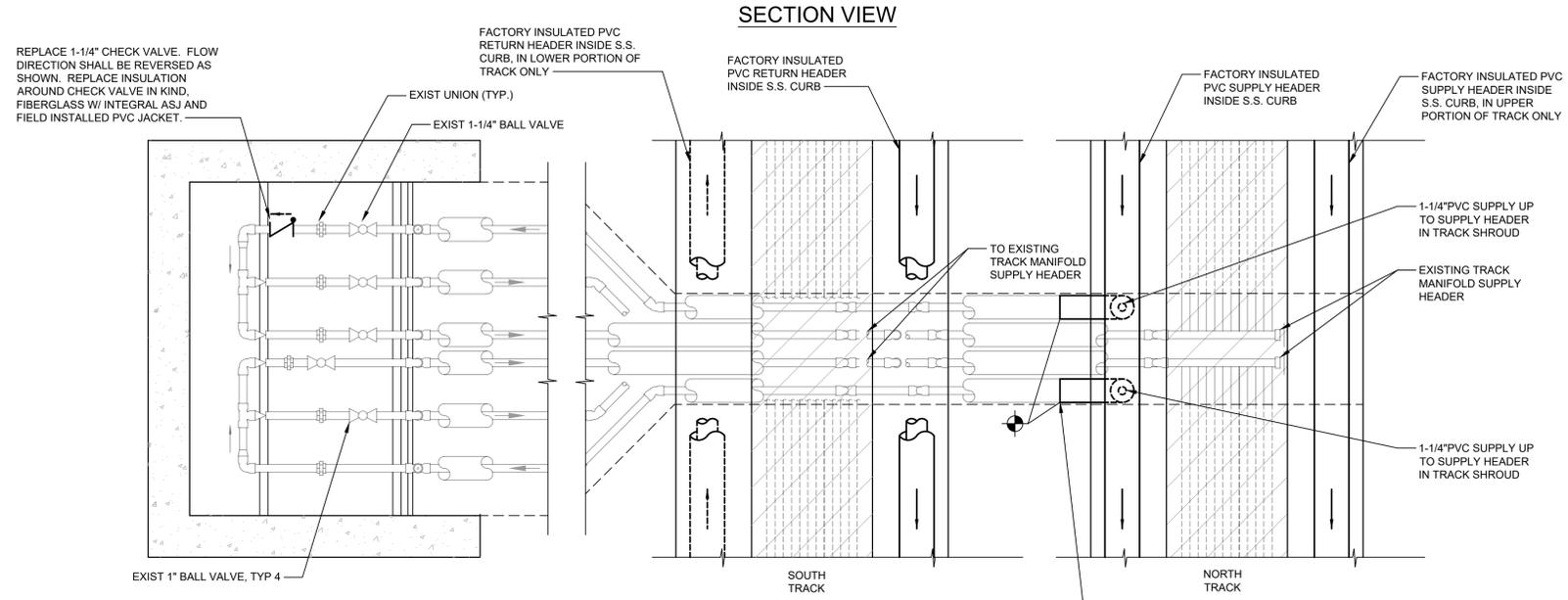
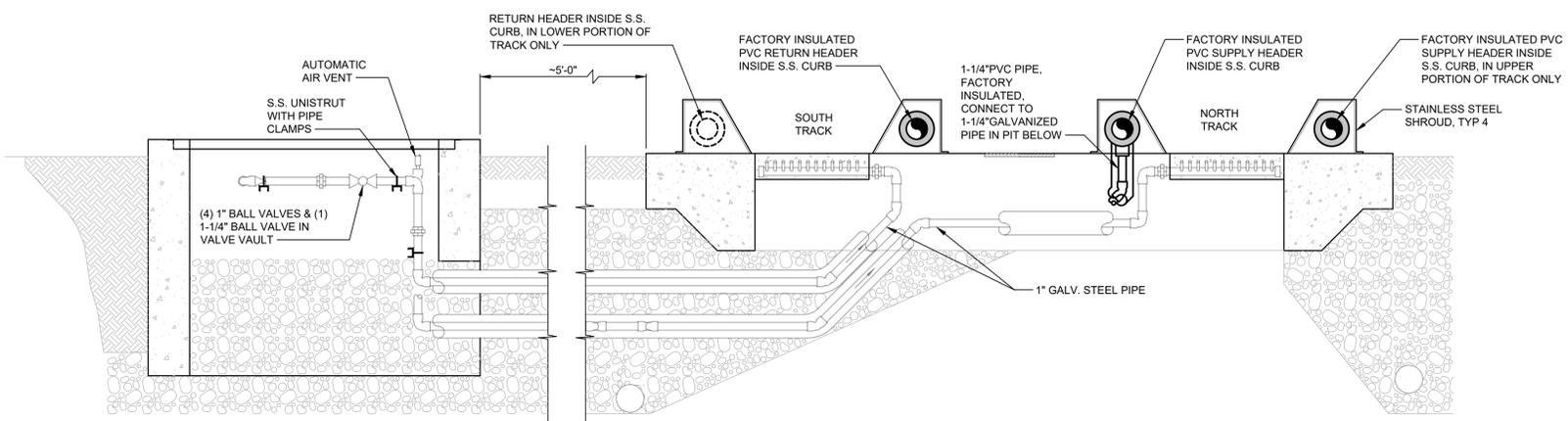
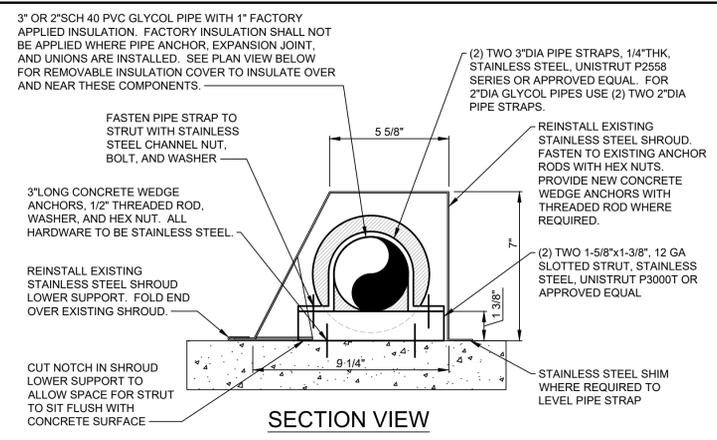
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MECHANICAL AND PLUMBING SECTIONS, DETAILS, AND SCHEDULES

SHEET NUMBER
MP501



A PIPE BRANCH CONNECTION DETAIL FOR ODD NUMBERED VALVE VAULT TIE-IN
SCALE: NONE

PLUMBING EQUIPMENT SCHEDULE				
MARK	EQUIPMENT	LOCATION	MANUFACTURER AND MODEL NUMBER	DESCRIPTION
BFP-1	BACK FLOW PREVENTER	REFRIGERATION EQUIPMENT BUILDING	WATTS/FEBCO 825Y	1-1/2" REDUCED-PRESSURE-PRINCIPAL BACKFLOW PREVENTER.
FD-1	FLOOR DRAIN	SEE DRAWINGS	JAY R SMITH, 2473	ADD ALTERNATE #1: REPLACEMENT OF DRAIN FIXTURES SHALL BE INCLUDED ONLY IF ADD ALTERNATE #1 IS ACCEPTED. MEDIUM DUTY FLOOR DRAIN WITH 12"x14" HINGED TOP, DUCO CAST IRON BODY WITH CAST IRON GRATE, DEEP BODY, CAST IRON FROST PROOF SOLID FREE STANDING SEDIMENT BUCKET, CAULKED OUTLET. PIPE SIZE TO MATCH EXISTING PIPE. CONFIRM PIPE SIZE FOR EACH INSTANCE IN FIELD. 2"DIA EXISTING PIPE SIZE IS ANTICIPATED, MATCH EXISTING SIZE AT NO ADDITIONAL COST TO OWNER.
YH-1	YARD POST HYDRANT	SEE DRAWINGS	WATTS, HY-800	WATTS DRAINAGE HY-800 NON-FREEZE YARD HYDRANT WITH EPOXY COATED CAST IRON HEAD WITH LIFT HANDLE AND LOCK OPTION, GALVANIZED CASING, BRONZE INTERNAL WORKING PARTS AND VALVE HOUSING, AND 1/8" NPT DRAIN PORT.

HEAT TRACE SCHEDULE		
DESCRIPTION	CHARACTERISTICS	BASIS OF DESIGN
SELF-REGULATING ROOF AND GUTTER DE-ICING HEATING CABLE	12 W/FT, 277V /1 PH, SELF-REGULATING CABLE, CONTINUOUS CORE OF CONDUCTIVE POLYMER EXTRUDED BETWEEN TWO COPPER BUS WIRES POLYOLEFIN OUTER JACKET.	MANUFACTURER: RAYCHEM (PENTAIR) MODEL: GM-2X (ICESTOP)

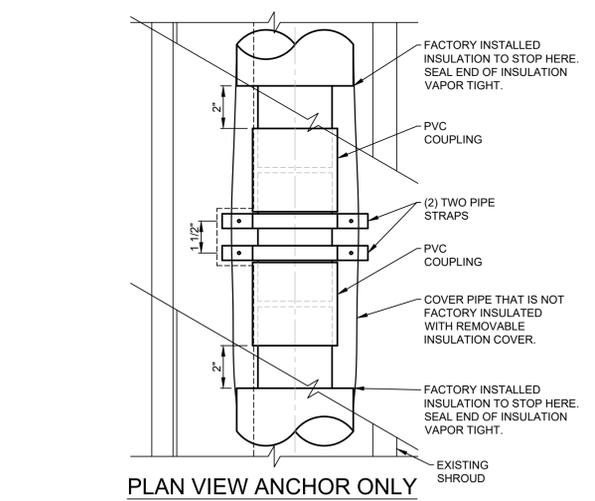
PUMP SCHEDULE																
TAG NO.	LOCATION	DESIGN CRITERIA					MOTOR				BASIS OF DESIGN		NOTES			
		TYPE	FLOW (GPM)	TDH	FLUID	FLUID TEMP	MIN. IMPELLER DIA.	MIN. EFFICIENCY	BHP	MOTOR HP	RPM	VOLT / PHASE / HZ		OPERATING WEIGHT	MFG.	MODEL #
P-1	REFRIGERATION EQUIPMENT BUILDING	END SUCTION	175 GPM	290 FT WG	PROPYLENE GLYCOL	-10.0 F	8.25 IN	63.0%	-	25.00 HP	3550	460 / 3 / 60	130 LBS	BELL & GOSSET	1531, 1.5BC	SEE ALL

- NOTES:
- REPLACE EXISTING PUMP IN-KIND. REUSE EXISTING MOTOR STARTER.
 - EPR/SIC/SS SHAFT SEAL COMPATIBLE FLUID AND TEMPERATURE LISTED ON PUMP SCHEDULE.
 - TEFC MOTOR.

INSTALL EXPANSION JOINT AT APPROPRIATE EXTENSION FOR AMBIENT TEMPERATURE DURING INSTALLATION. THE TABLE BELOW INDICATES INSTALL EXTENSION PER AMBIENT TEMPERATURE WHERE 6" IS FULLY EXTENDED AND 0" IS FULLY RECESSED.

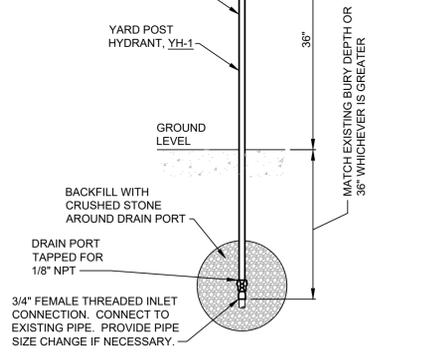
AMBIENT AIR TEMP	EXTENSION
-20 F	6"
-10 F	5-9/16"
0 F	5-1/8"
10 F	4-11/16"
20 F	4-5/16"
30 F	3-7/8"
40 F	3-7/16"
50 F	3"
60 F	2-9/16"
70 F	2-1/8"
80 F	1-11/16"
90 F	1-5/16"
100 F	7/8"
110 F	7/16"
120 F	0"

PLAN VIEW ANCHOR W/ EXPANSION JOINT

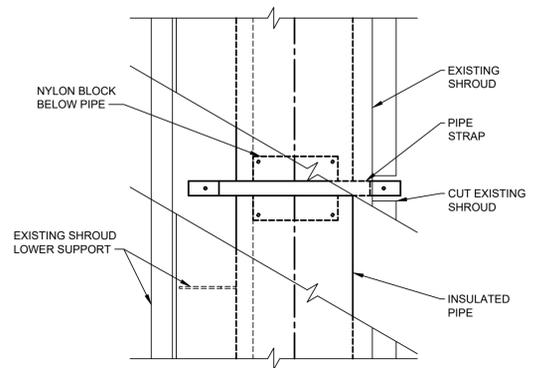
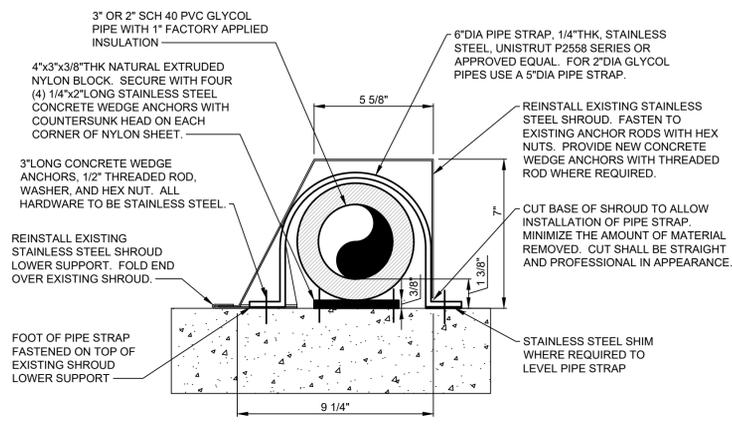


C EXPANSION JOINT AND PIPE ANCHOR DETAIL
SCALE: NONE

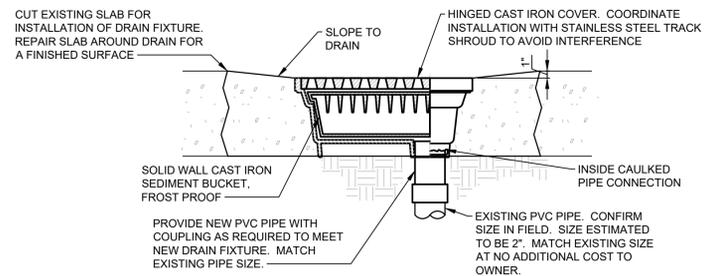
PROVIDE 7" HIGH x 10" WIDE ALUMINUM SIGN DESIGNED FOR OUTDOOR INSTALLATION WITH THE STATEMENT, "NOTICE NON POTABLE WATER NOT FOR DRINKING OR COOKING USE." FASTEN TO POST HYDRANT.



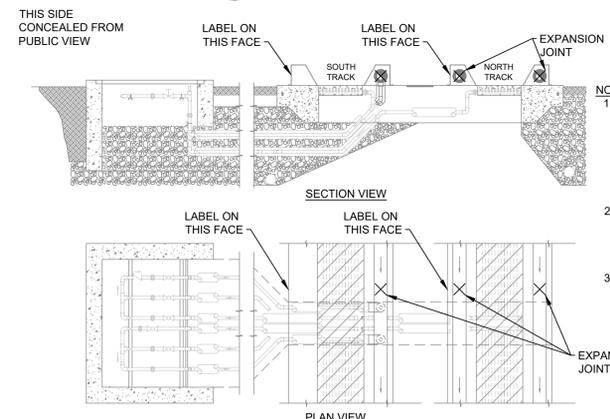
B YARD POST HYDRANT DETAIL
SCALE: NONE



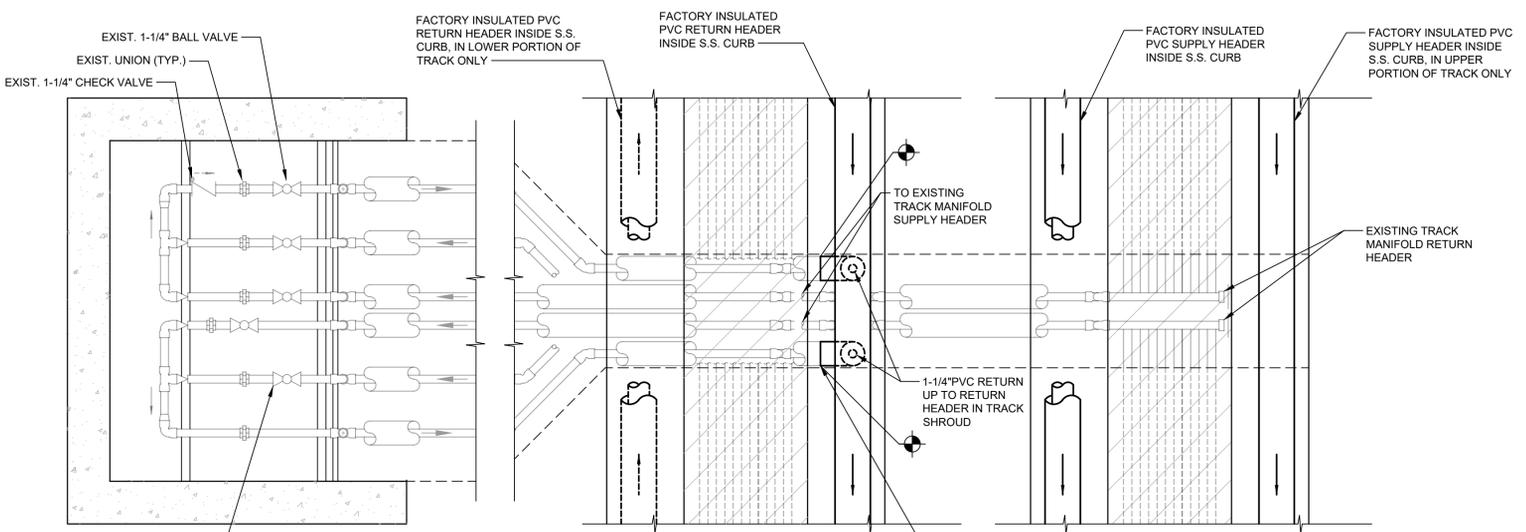
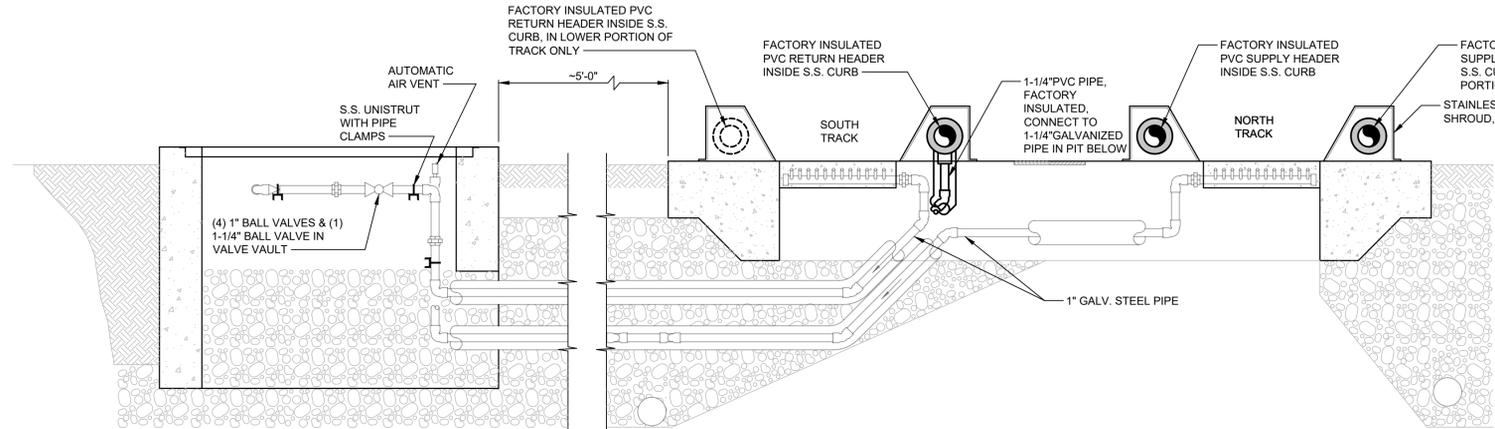
D PIPE GUIDE DETAIL
SCALE: NONE



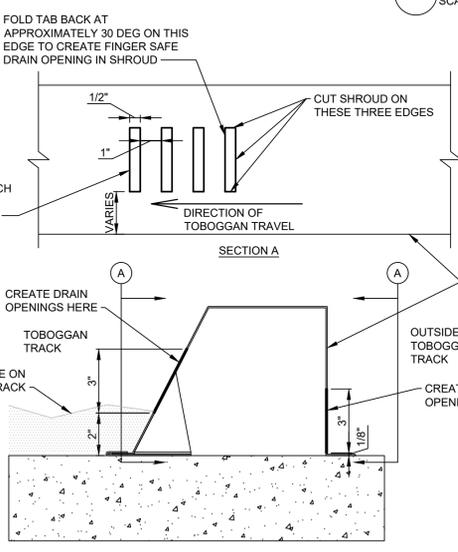
F EXPANSION JOINT LABEL DETAIL
SCALE: NONE



F EXPANSION JOINT LABEL DETAIL
SCALE: NONE



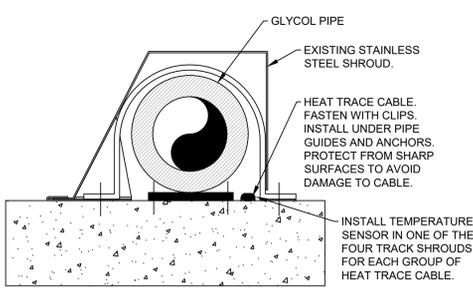
A PIPE BRANCH CONNECTION DETAIL FOR EVEN NUMBERED VALVE VAULT TIE-IN
SCALE: NONE



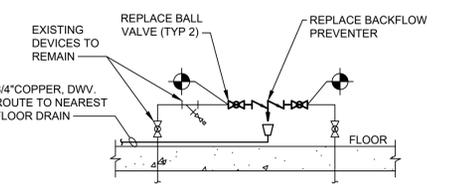
G TRACK SHROUD DRAIN DETAIL
SCALE: NONE

EXPANSION TANK SCHEDULE

TAG NO.	LOCATION	APPROX SYSTEM VOLUME	WATER TEMP RANGE MIN/MAX	PRV FILL PRESSURE AT TANK PSIG	MAX OPER. PRESS.		MIN. VOLUME	MIN. ACCEPT VOLUME	BASIS OF DESIGN		NOTES
					RELIEF VALVE PSIG	AT TANK PSIG			MFGR	MODEL #	
ET-1	REFRIGERATED EQUIPMENT BUILDING	2,660.0 GAL	-10 F TO 90 F	20.0 PSIG	80.0 PSIG	80.0 PSIG	132.0 GAL	39.9 GAL	BELL & GOSSETT	D-240V	NONE

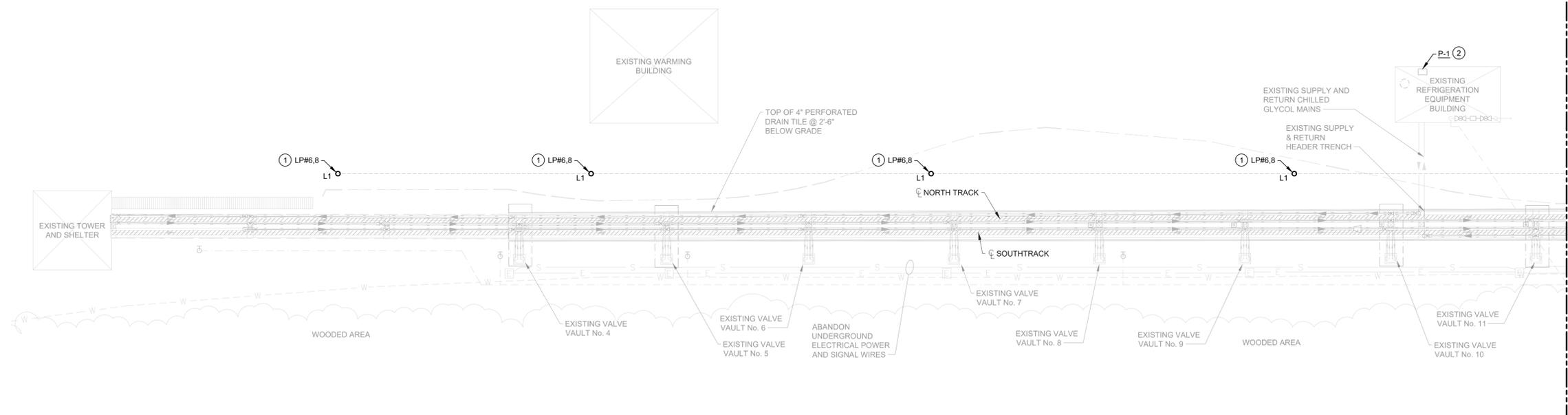


C HEAT TRACE DETAIL
SCALE: NONE



B BACKFLOW PREVENTER DETAIL
SCALE: NONE

ORIGINAL SHEET SIZE IS 24" X 36" (ARCH D) Location: G:\PROJECTS\19-110 IDOA - DNR POKAGON STATE PARK TOBOGGAN RUN MECHANICAL UPGRADES\CADD\19-110_MP502 | Plot Date: 11/23/2021 5:06 PM | By: MDJAMIESON | Save Date: 11/23/2021 5:06 PM | By: MDJAMIESON



ELECTRICAL UPPER TRACK PLAN AND PROFILE

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
2. COORDINATE WORK WITH ALL OTHER DISCIPLINES.
3. EXISTING DEVICES, CIRCUIT NUMBERS, AND LOCATIONS ARE BASED ON CASUAL OBSERVATION, HISTORICAL DOCUMENTS, AND CONVERSATIONS WITH OWNER. NOT ALL EXISTING DEVICES, LIGHTING FIXTURES, ETC. MAY BE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL ELECTRICAL EQUIPMENT PRIOR TO REMOVAL.
4. ALL DEVICES, EQUIPMENT, ETC. SHOWN ON THIS DRAWING TO BE REMOVED SHALL BE REMOVED AS NOTED. OWNER SHALL HAVE RIGHT OF FIRST REFUSAL FOR ALL EQUIPMENT THAT IS REMOVED.
5. PROVIDE NEW PANEL DIRECTORIES IN PANEL(S) BEING REVISED AS PART OF THIS PROJECT.
6. ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABILITY AND CAPACITY OF EACH CIRCUIT AND DISTRIBUTION SYSTEM PRIOR TO INSTALLATION.
7. ALL CIRCUITS SHALL CONSIST OF 3/4" C, 2-#12 & #12 GND UNLESS OTHERWISE NOTED. DEVICE SHALL BE WIRED TO CIRCUIT INDICATED. AVAILABILITY OF NEW CIRCUITS SHALL BE VERIFIED BY CONTRACTOR AND FIELD ASSIGNED.
8. REFER TO DRAWING E501 FOR LIGHTING FIXTURE SCHEDULE.
9. INSTALLATIONS SHALL INCLUDE ALL EQUIPMENT, MATERIAL AND ALL ASSOCIATED HARDWARE FOR A COMPLETE SYSTEM.
10. STORE AND PROTECT ALL EQUIPMENT IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION.
11. ALL EQUIPMENT CIRCUITS SHALL BE IDENTIFIED INSIDE COVER OR AT EQUIPMENT.
12. CALL 411 FOR A UTILITY LOCATE PRIOR TO DIGGING OR ANY UNDERGROUND CONSTRUCTION ACTIVITY. PROTECT ALL EXISTING BURIED UTILITIES FROM DAMAGE.

PLAN NOTES:

- ADD ALTERNATE #2
1. REPLACEMENT OF LIGHT POLES AND LIGHT FIXTURES SHALL BE INCLUDED ONLY IF ADD ALTERNATE 2 IS ACCEPTED. REMOVE EXISTING POLE AND LIGHT FIXTURE. EXISTING ANCHOR BOLTS, CONCRETE POLE BASE, CONDUIT & WIRING SHALL BE RE-USED. USE CAUTION TO PROTECT EXISTING MATERIAL THAT WILL REMAIN DURING POLE REMOVAL. PROVIDE NEW POLE WITH UPSWEEP MAST ARM AND LED FIXTURE (REFERENCE LIGHTING SCHEDULE ON DRAWING E501). THIS SHALL INCLUDE ALL ASSOCIATED EQUIPMENT (ANCHOR BOLT ADAPTER - IF REQUIRED, SHIMS, ETC.) NECESSARY FOR A COMPLETE INSTALLATION. GROUT UNDER BASE PLATE AFTER POLE IS PLUMB.
 2. PUMP P-1 WILL BE REPLACED. COORDINATE WITH MECHANICAL CONTRACTOR TO PERFORM A DE-TERMINATION AND A RE-TERMINATION. REFERENCE MECHANICAL DRAWINGS FOR FURTHER INFORMATION.

OWNER
Department of Natural Resources
Division of Engineering
402 W. Washington Street, Room W299
Indianapolis, IN 46204

PROJECT
Pokagon State Park
Toboggan Run Piping
Upgrades
Public Works Project No.
ENG2003780646

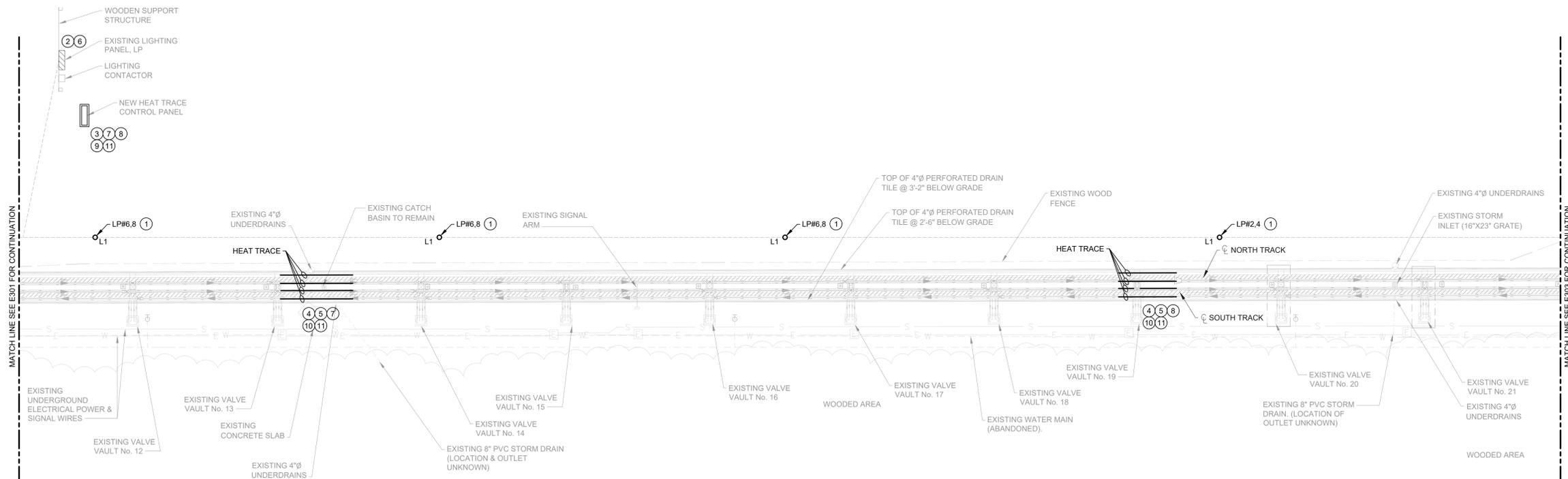
Construction Documents
November 22, 2021

REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED BY NDL	
CHECKED BY LDH	
APPROVED BY NDL	
PROJECT NO. 19-110	

SHEET TITLE
ELECTRICAL UPPER TRACK PLAN AND PROFILE

SHEET NUMBER
E301



ELECTRICAL MIDDLE TRACK PLAN AND PROFILE

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

GENERAL NOTES:

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
- COORDINATE WORK WITH ALL OTHER DISCIPLINES.
- EXISTING DEVICES, CIRCUIT NUMBERS, AND LOCATIONS ARE BASED ON CASUAL OBSERVATION, HISTORICAL DOCUMENTS, AND CONVERSATIONS WITH OWNER. NOT ALL EXISTING DEVICES, LIGHTING FIXTURES, ETC. MAY BE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL ELECTRICAL EQUIPMENT PRIOR TO REMOVAL.
- ALL DEVICES, EQUIPMENT, ETC. SHOWN ON THIS DRAWING TO BE REMOVED SHALL BE REMOVED AS NOTED. OWNER SHALL HAVE RIGHT OF FIRST REFUSAL FOR ALL EQUIPMENT THAT IS REMOVED.
- PROVIDE NEW PANEL DIRECTORIES IN PANEL(S) BEING REVISED AS PART OF THIS PROJECT.
- ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABILITY AND CAPACITY OF EACH CIRCUIT AND DISTRIBUTION SYSTEM PRIOR TO INSTALLATION.
- ALL CIRCUITS SHALL CONSIST OF 3/4" C, 2-#12 & #12 GND UNLESS OTHERWISE NOTED. DEVICE SHALL BE WIRED TO CIRCUIT INDICATED. AVAILABILITY OF NEW CIRCUITS SHALL BE VERIFIED BY CONTRACTOR AND FIELD ASSIGNED.
- REFER TO DRAWING E501 FOR LIGHTING FIXTURE SCHEDULE.
- INSTALLATIONS SHALL INCLUDE ALL EQUIPMENT, MATERIAL AND ALL ASSOCIATED HARDWARE FOR A COMPLETE SYSTEM.
- STORE AND PROTECT ALL EQUIPMENT IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION.
- ALL EQUIPMENT CIRCUITS SHALL BE IDENTIFIED INSIDE COVER OR AT EQUIPMENT.
- CALL 411 FOR A UTILITY LOCATE PRIOR TO DIGGING OR ANY UNDERGROUND CONSTRUCTION ACTIVITY. PROTECT ALL EXISTING BURIED UTILITIES FROM DAMAGE.

PLAN NOTES:

- ADD ALTERNATE #2
- REPLACEMENT OF LIGHT POLES AND LIGHT FIXTURES SHALL BE INCLUDED ONLY IF ADD ALTERNATE 2 IS ACCEPTED. REMOVE EXISTING POLE AND LIGHT FIXTURE. EXISTING ANCHOR BOLTS, CONCRETE POLE BASE, CONDUIT & WIRING SHALL BE RE-USED. USE CAUTION TO PROTECT EXISTING MATERIAL THAT WILL REMAIN DURING POLE REMOVAL. PROVIDE NEW POLE WITH UPSWEEP MAST ARM AND LED FIXTURE (REFERENCE LIGHTING SCHEDULE ON DRAWING E501). THIS SHALL INCLUDE ALL ASSOCIATED EQUIPMENT (ANCHOR BOLT ADAPTER - IF REQUIRED, SHIMS, ETC.) NECESSARY FOR A COMPLETE INSTALLATION. GROUT UNDER BASE PLATE AFTER POLE IS PLUMB.
 - PROVIDE (3) SQUARE D MODEL EDB14020 CIRCUIT BREAKERS IN PANEL LP (CIRCUITS 10, 11 & 12) FOR HEAT TRACE. BREAKERS SHALL BE RATED FOR 20A, 277V, 18KAIC AND HACR.
 - PROVIDE (1) HEAT TRACE CONTROL ENCLOSURE (HTCE). HTCE SHALL CONSIST OF (1) 30A TOGGLE DISCONNECT AND (1) NEW HEAT TRACE CONTROLLER (RAYCHEM MODEL C910-485 OR AN APPROVED EQUAL) FOR EACH HEAT TRACE CIRCUIT - TOTAL (3) CIRCUITS. PROVIDE (3) DISCONNECTS AND (3) CONTROLLERS IN A 24"W X 48"H X 10"D; NEMA 4X ENCLOSURE WITH PIANO HINGE; LOCKABLE HANDLE, FREESTANDING SUPPORT (6" FLOOR STAND KIT) AND BACK PANEL. REFERENCE DETAIL ON DRAWING E501. PROVIDE CONCRETE SUPPORT PILLARS BY EXISTING POWER PANEL. MOUNT ENCLOSURE ON CONCRETE SUPPORT PILLARS. REFERENCE DRAWING E501 DETAIL A AND DETAIL B FOR MORE INFORMATION.
 - PROVIDE (1) HEAT TRACE TERMINAL BOX FOR EACH HEAT TRACE LOCATION (TOTAL-3). IT SHALL BE A NEMA 4X ENCLOSURE WITH A BACK PANEL, TERMINAL BLOCK (CAPABLE OF TERMINATING (8) HEAT TRACE CABLES), PIANO HINGE AND LOCKABLE HANDLE. IT SHALL BE INSTALLED IN THE NEAREST VALVE VAULT WHERE TERMINATIONS SHALL BE ACCESSIBLE. PERFORM ALL TERMINATIONS IN ENCLOSURE.
 - PROVIDE APPROXIMATELY (4) 25' RUNS OF HEAT TRACE AT LOCATIONS SHOWN ON DRAWING MP302 - NOTE 11 (2 - LOCATIONS) AND DRAWING MP303 - NOTE 9 (1 - LOCATION). ROUTE HEAT TRACE CABLE INSIDE PIPE SHROUD (REFERENCE DRAWING MP302 DETAIL C). EACH HEAT TRACE RUN SHALL HAVE A 20' STRAIGHT RUN IN CONTACT WITH CONCRETE (IF VALVE VAULT IS LOCATED IN MIDDLE OF RUN - CABLE MAY RUN IN EACH DIRECTION OUT OF VALVE VAULT FOR A TOTAL OF 20'). PROVIDE ADDITIONAL CABLE AS REQUIRED TO GO FROM TERMINAL BOX TO START OF 20' STRAIGHT RUN (EACH HEAT TRACE LENGTH SHALL BE DETERMINED AFTER EC IDENTIFIES TERMINAL BOX MOUNTING LOCATION). CONTRACTOR/HEAT TRACE MANUFACTURER SHALL PROVIDE FINAL DESIGN FOR REVIEW AND APPROVAL BY RESPONSIBLE PROJECT ENGINEER. CONTRACTOR SHALL PROVIDE ALL MATERIAL FOR A COMPLETE AND OPERATIONAL HEAT TRACE SYSTEM. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL HEAT TRACE INFORMATION. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR.
 - PROVIDE (3) 20A CIRCUITS FROM NEW CIRCUIT BREAKERS IN PANEL LP TO HEAT TRACE CONTROL ENCLOSURE (1 CIRCUIT FOR EACH HEAT TRACE CONTROLLER). ROUTE (1) 1" RIGID CONDUIT UNDERGROUND FROM PANEL LP WITH #6 AWG (3 HOT, 3 NEUTRAL & 1 GROUND). ROUTE POWER FROM BREAKER THROUGH TOGGLE DISCONNECT TO HEAT TRACE CONTROLLER FOR EACH.
 - PROVIDE (1) 3/4" CONDUIT (POWER) FROM HEAT TRACE CONTROL PANEL #1 (UNDERGROUND) TO HEAT TRACE TERMINAL BOX (VALVE VAULT NO. 13) WITH 2-#10 AWG & #10 GND.
 - PROVIDE (1) 3/4" CONDUIT (POWER) FROM HEAT TRACE CONTROL PANEL #2 (UNDERGROUND) TO HEAT TRACE TERMINAL BOX (VALVE VAULT NO. 19) WITH 2-#8 AWG & #8 GND.
 - PROVIDE (1) 3/4" CONDUIT (POWER) FROM HEAT TRACE CONTROL PANEL #3 (UNDERGROUND) TO HEAT TRACE TERMINAL BOX (VALVE VAULT NO. 24 - DRAWING E303) WITH 2-#8 AWG & #8 GND.
 - PROVIDE EACH HEAT TRACE CONTROLLER WITH A PLATINUM RTD. COORDINATE LOCATION OF EACH RTD WITH DRAINS AND HEAT TRACE LOCATIONS SHOWN ON DRAWINGS MP302 AND MP303.
 - PROVIDE (1) 3/4" CONDUITS (CONTROL) FROM HEAT TRACE CONTROL PANEL (UNDERGROUND) TO RTD. PROVIDE RTD EXTENSION CABLE FROM HEAT TRACE CONTROL PANEL TO RTD. CABLE SHALL BE AS REQUIRED BY MANUFACTURER.

OWNER
Department of Natural Resources
Division of Engineering
402 W. Washington Street, Room W299
Indianapolis, IN 46204

PROJECT
Pokagon State Park
Toboggan Run Piping
Upgrades
Public Works Project No.
ENG2003780646

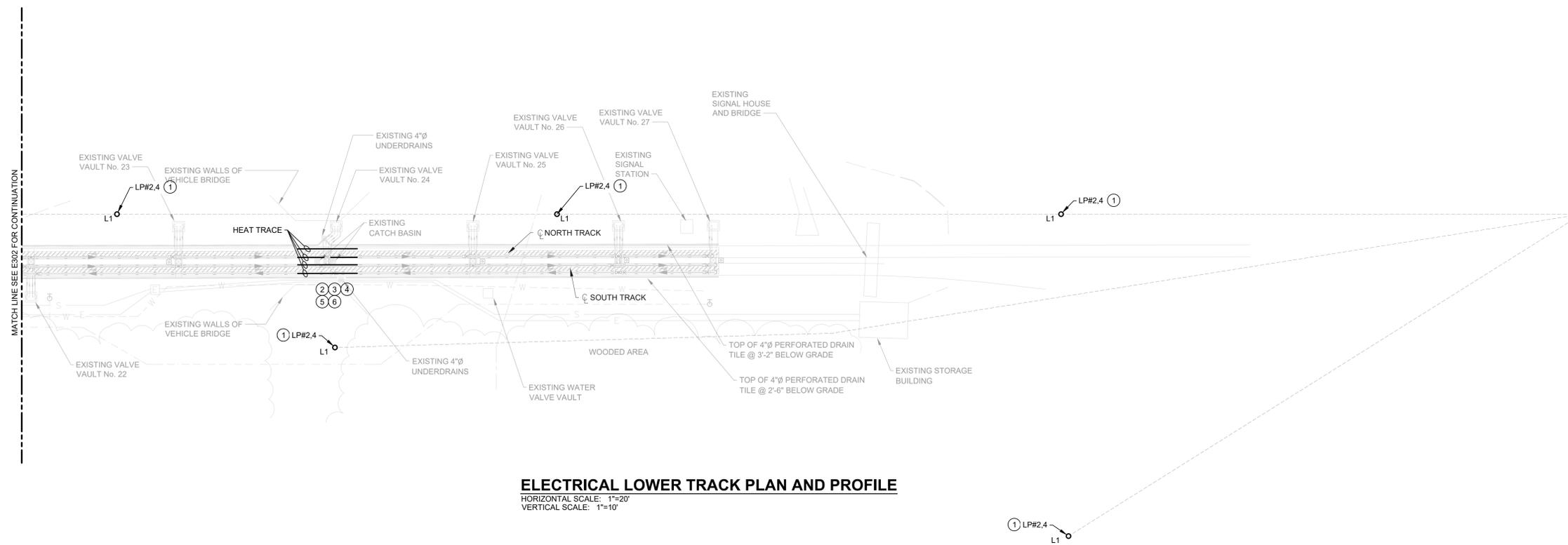
Construction Documents
November 22, 2021

REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED BY NDL	
CHECKED BY LDH	
APPROVED BY NDL	
PROJECT NO. 19-110	

SHEET TITLE
ELECTRICAL MIDDLE TRACK PLAN AND PROFILE

SHEET NUMBER
E302



ELECTRICAL LOWER TRACK PLAN AND PROFILE

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
2. COORDINATE WORK WITH ALL OTHER DISCIPLINES.
3. EXISTING DEVICES, CIRCUIT NUMBERS, AND LOCATIONS ARE BASED ON CASUAL OBSERVATION, HISTORICAL DOCUMENTS, AND CONVERSATIONS WITH OWNER. NOT ALL EXISTING DEVICES, LIGHTING FIXTURES, ETC. MAY BE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL ELECTRICAL EQUIPMENT PRIOR TO REMOVAL.
4. ALL DEVICES, EQUIPMENT, ETC. SHOWN ON THIS DRAWING TO BE REMOVED SHALL BE REMOVED AS NOTED. OWNER SHALL HAVE RIGHT OF FIRST REFUSAL FOR ALL EQUIPMENT THAT IS REMOVED.
5. PROVIDE NEW (UPDATED) PANEL DIRECTORY IN PANEL(S) BEING REVISED AS PART OF THIS PROJECT.
6. ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABILITY AND CAPACITY OF EACH CIRCUIT AND DISTRIBUTION SYSTEM PRIOR TO INSTALLATION.
7. ALL CIRCUITS SHALL CONSIST OF 3/4" C, 2-#12 & #12 GND UNLESS OTHERWISE NOTED. DEVICE SHALL BE WIRED TO CIRCUIT INDICATED. AVAILABILITY OF NEW CIRCUITS SHALL BE VERIFIED BY CONTRACTOR AND FIELD ASSIGNED.
8. REFER TO DRAWING E501 FOR LIGHTING FIXTURE SCHEDULE.
9. INSTALLATIONS SHALL INCLUDE ALL EQUIPMENT, MATERIAL AND ALL ASSOCIATED HARDWARE FOR A COMPLETE SYSTEM.
10. STORE AND PROTECT ALL EQUIPMENT IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION.
11. ALL EQUIPMENT CIRCUITS SHALL BE IDENTIFIED INSIDE COVER OR AT EQUIPMENT.
12. CALL 411 FOR A UTILITY LOCATE PRIOR TO DIGGING OR ANY UNDERGROUND CONSTRUCTION ACTIVITY. PROTECT ALL EXISTING BURIED UTILITIES FROM DAMAGE.

PLAN NOTES:

- ADD ALTERNATE #2
1. REPLACEMENT OF LIGHT POLES AND LIGHT FIXTURES SHALL BE INCLUDED ONLY IF ADD ALTERNATE 2 IS ACCEPTED. REMOVE EXISTING POLE AND LIGHT FIXTURE. EXISTING ANCHOR BOLTS, CONCRETE POLE BASE, CONDUIT & WIRING SHALL BE RE-USED. USE CAUTION TO PROTECT EXISTING MATERIAL THAT WILL REMAIN DURING POLE REMOVAL. PROVIDE NEW POLE WITH UPSWEEP MAST ARM AND LED FIXTURE (REFERENCE LIGHTING SCHEDULE ON DRAWING E501). THIS SHALL INCLUDE ALL ASSOCIATED EQUIPMENT (ANCHOR BOLT ADAPTER - IF REQUIRED, SHIMS, ETC.) NECESSARY FOR A COMPLETE INSTALLATION. GROUT UNDER BASE PLATE AFTER POLE IS PLUMB.
 2. PROVIDE (1) HEAT TRACE TERMINAL BOX FOR EACH HEAT TRACE LOCATION (TOTAL-3). IT SHALL BE A NEMA 4X ENCLOSURE WITH A BACK PANEL, TERMINAL BLOCK (CAPABLE OF TERMINATING (8) HEAT TRACE CABLES), PIANO HINGE AND LOCKABLE HANDLE. IT SHALL BE INSTALLED IN THE NEAREST VALVE VAULT WHERE TERMINATIONS SHALL BE ACCESSIBLE. PERFORM ALL TERMINATIONS IN ENCLOSURE.
 3. PROVIDE APPROXIMATELY (4) 25' RUNS OF HEAT TRACE AT LOCATIONS SHOWN ON DRAWING MP302 - NOTE 11 (2 - LOCATIONS) AND DRAWING MP303 - NOTE 9 (1 - LOCATION). ROUTE HEAT TRACE CABLE INSIDE PIPE SHROUD (REFERENCE DRAWING MP502 DETAIL C). EACH HEAT TRACE RUN SHALL HAVE A 20' STRAIGHT RUN IN CONTACT WITH CONCRETE (IF VALVE VAULT IS LOCATED IN MIDDLE OF RUN - CABLE MAY RUN IN EACH DIRECTION OUT OF VALVE VAULT FOR A TOTAL OF 20'). PROVIDE ADDITIONAL CABLE AS REQUIRED TO GO FROM TERMINAL BOX TO START OF 20' STRAIGHT RUN (EACH HEAT TRACE LENGTH SHALL BE DETERMINED AFTER EC IDENTIFIES TERMINAL BOX MOUNTING LOCATION). CONTRACTOR/HEAT TRACE MANUFACTURER SHALL PROVIDE FINAL DESIGN FOR REVIEW AND APPROVAL BY RESPONSIBLE PROJECT ENGINEER. CONTRACTOR SHALL PROVIDE ALL MATERIAL FOR A COMPLETE AND OPERATIONAL HEAT TRACE SYSTEM. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL HEAT TRACE INFORMATION. COORDINATE INSTALLATION WITH MECHANICAL CONTRACTOR.
 4. PROVIDE (1) 3/4" CONDUIT (POWER) FROM HEAT TRACE CONTROL PANEL #3 (UNDERGROUND) TO HEAT TRACE TERMINAL BOX (VALVE VAULT NO. 24) WITH 2-#6 AWG & #6 GND.
 5. PROVIDE EACH HEAT TRACE CONTROLLER WITH A PLATINUM RTD. COORDINATE LOCATION OF EACH RTD WITH DRAINS AND HEAT TRACE LOCATIONS SHOWN ON DRAWINGS MP302 AND MP303.
 6. PROVIDE (1) 3/4" CONDUITS (CONTROL) FROM HEAT TRACE CONTROL PANEL (UNDERGROUND) TO RTD. PROVIDE RTD EXTENSION CABLE FROM HEAT TRACE CONTROL PANEL TO RTD. CABLE SHALL BE AS REQUIRED BY MANUFACTURER.

OWNER
Department of Natural Resources
Division of Engineering
402 W. Washington Street, Room W299
Indianapolis, IN 46204

PROJECT
Pokagon State Park
Toboggan Run Piping
Upgrades
Public Works Project No.
ENG2003780646

Construction Documents
November 22, 2021

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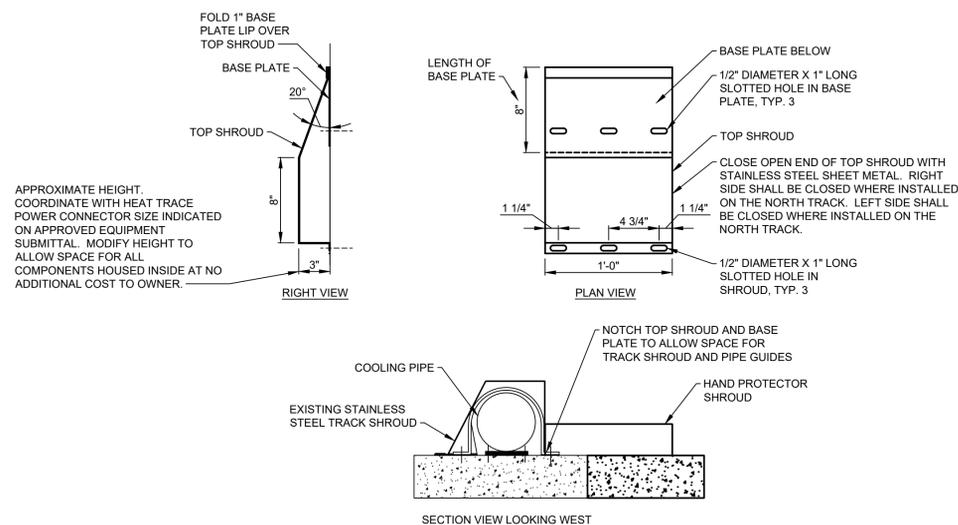
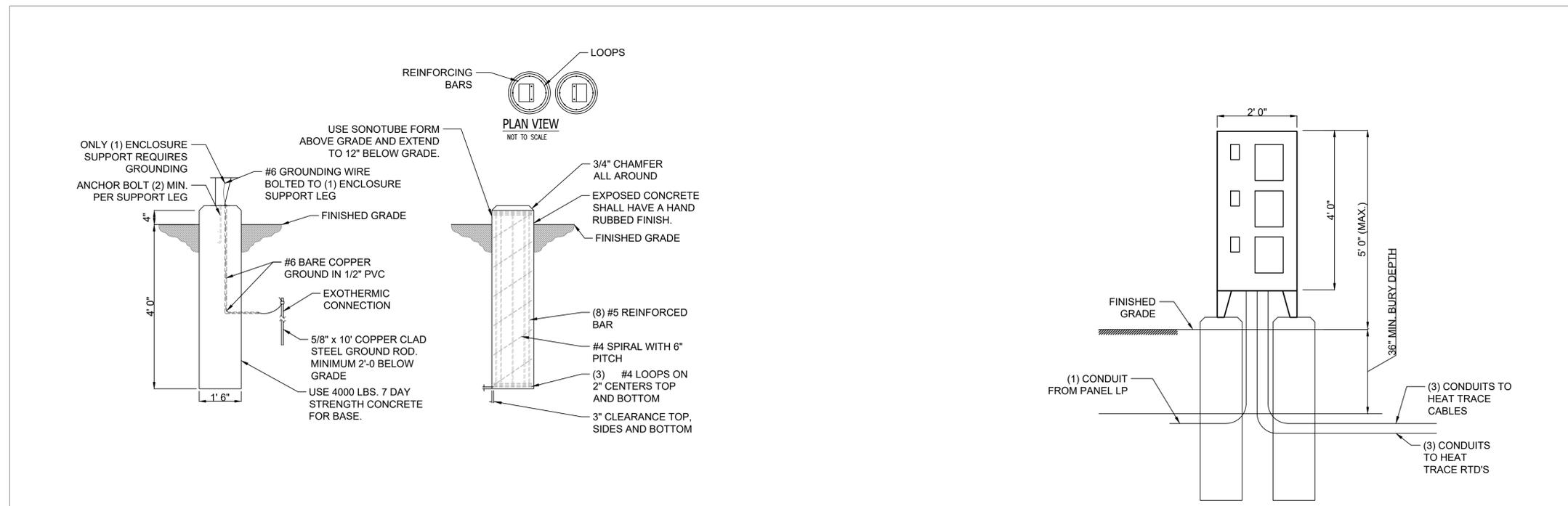
DESIGNED BY NDL	
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APPROVED BY NDL	
PROJECT NO. 19-110	

SHEET TITLE
ELECTRICAL LOWER TRACK PLAN AND PROFILE

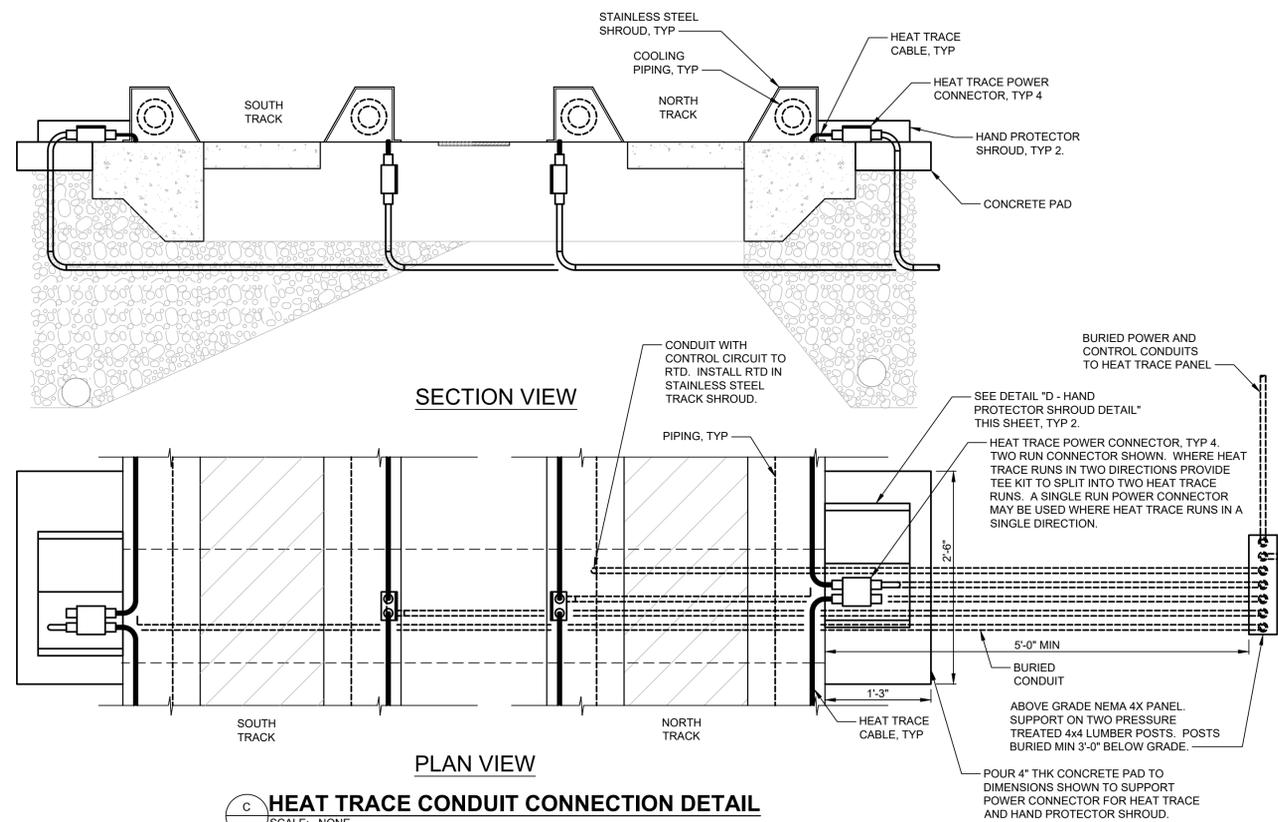
SHEET NUMBER
E303

LIGHTING FIXTURE SCHEDULE											
TYPE	TYPE	DESCRIPTION	MOUNTING		LED LAMP			MANUFACTURERS	WATT	NOTES	
			TYPE	HEIGHT	Lumens	COLOR/ CRI	Lumens /Watts				VOLT
L1	POLE MOUNTED AREA LIGHT	DIE-CAST ALUMINUM; THERMOSET POWDER COAT; DISTRIBUTION TYPE 3 MEDIUM; 70 CRI; UNIVERSAL DRIVER; ROUND POLE ADAPTER; FINISH - DARK BRONZE.	ARM	30'	49,000	4000K, >70	>110	480 1PH	LITHONIA D-SERIES, BEACON MATRIX SERIES, COOPER GLEON SERIES	430	1,2

NOTES:
1. CONTRACTOR TO VERIFY FIXTURE MOUNTING REQUIREMENT TO EXISTING CONCRETE POLE BASE PRIOR TO PURCHASE.
2. PROVIDE (1) 30' TALL ROUND TAPERED ALUMINUM POLE WITH A SINGLE 4' UPSWEEP MAST ARM AND HANDHOLE. COLOR TO MATCH LIGHT FIXTURE. PROVIDE BASE COVER PLATE WHICH COVERS POLE BASE AND ANCHOR BOLTS. POLE SHALL BE CAPABLE OF WITHSTANDING 80MPH WINDS WITH 30% ADDITIONAL GUST FACTOR.
ADD ALTERNATE #2: REPLACEMENT OF LIGHT POLES AND LIGHT FIXTURES DESCRIBED IN FIXTURE SCHEDULE ABOVE SHALL BE INCLUDED ONLY IF ADD ALTERNATE 2 IS ACCEPTED.



NOTES:
1. FABRICATE HAND PROTECTOR SHROUD, INCLUDING TOP SHROUD AND BASE PLATE, WITH 16GA STAINLESS STEEL SHEET METAL.
2. FASTEN TO TRACK WITH 1/4" ANCHOR BOLT, WASHER AND NUT IN EACH SLOTTED HOLD INDICATED. ALL FASTENING HARDWARE SHALL BE STAINLESS STEEL.



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PROJECT
Pokagon State Park Toboggan Run Piping Upgrades
Public Works Project No. ENG2003780646

Construction Documents
November 22, 2021

REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED BY NDL	CERTIFICATION
CHECKED BY LDH	
APPROVED BY NDL	
PROJECT NO. 19-110	
SHEET TITLE	11/22/2021

ELECTRICAL SCHEDULES AND DETAILS

SHEET NUMBER

E501